

THE INVENTION CLAIMED IS

1. A method of producing a sintered nickel ferrite component comprising the steps of:
 - (a) mixing particles of iron oxide and nickel oxide with an alkali metal borate;
 - (b) compacting the mixture produced in step (a) to provide a green compact; and
 - (c) heating the green compact at a temperature less than about 1400° C to produce a sintered component.
2. The method of claim 1, wherein the alkali metal borate is selected from the group consisting of sodium borate, lithium borate and cesium borate.
3. The method of claim 1, wherein the alkali metal borate of step (a) comprises an aqueous solution of the alkali metal borate such that step (a) comprises incipient wetting of the particles.
4. The method of claim 1, wherein the green compact has a shape suitable for an anode of an aluminum smelting bath.
5. The method of claim 1, wherein step (a) further comprises mixing a binder with the particles.
6. The method of claim 5, wherein the alkali metal borate is mixed with the particles prior to adding the binder.
7. The method of claim 5, wherein the alkali metal borate and the binder are simultaneously mixed together with the particles.
8. The method of claim 1, wherein the compact comprises about 50-75 wt.% iron oxide and 25-50 wt.% nickel oxide.

9. The method of claim 1, wherein a sufficient concentration of the alkali metal borate is added so that the compact comprises about 0.025–1.6 wt.% boron.
10. The method of claim 1, wherein a sufficient concentration of the alkali metal borate is added so that the compact comprises about 0.045–0.3 wt.% boron.
11. A sintered nickel ferrite component produced according to the method of claim 1.
12. An inert anode for use in a molten salt bath comprising a sintered composition comprising nickel ferrite and an alkali metal borate.
13. The anode of claim 12, wherein the alkali metal borate is selected from the group consisting of sodium borate, lithium borate and cesium borate.
14. The anode of claim 12, wherein the concentration of boron in the sintered composition is about 0.025 – 1.6 wt.%.
15. The anode of claim 12, wherein the concentration of boron in the sintered composition is about 0.045 – 0.3 wt.%.
16. An electrolytic cell for producing aluminum comprising:
a molten salt bath comprising an electrolyte and alumina;
an anode comprising the inert anode of claim 12; and
a cathode.
17. The electrolytic cell of claim 16, wherein said molten salt bath comprises aluminum fluoride and sodium fluoride.

18. A method of producing metal by passing a current between an anode and a cathode through a molten salt bath comprising an electrolyte and an oxide of the metal to be produced, said anode comprising the inert anode of claim 12.

19. The method of claim 18, wherein the metal is aluminum.

20. The method of claim 19, wherein the molten salt bath comprises aluminum fluoride and sodium fluoride.